

CLAIM AMENDMENTS

1-35. (Cancelled)

1 36. (Currently Amended) An automated manufacture process test system resident upon a
2 disk drive that performs a manufacture test process on the disk drive once the disk drive is
3 installed and operating within a computer system, the test system comprising:

4 a monitor that determines whether any user command from the computer system is
5 pending or the computer system is idle;

6 a processing module that performs the manufacture test process on a disk of the disk
7 drive, wherein the manufacture test process is performed on a portion of the disk for the first time
8 and in a particular manner depending on whether the computer system has issued the user
9 command or the computer system is idle, the manufacture test process includes at least one of
10 flaw mapping, embedded runout compensation (ERC) and final drive verification, and the
11 processing module performs the flaw mapping such that a first flaw mapping test is performed
12 when a user command for operating the disk drive is pending and a second flaw mapping test is
13 performed when the computer is system is idle; and

14 a controller that tracks performance of the manufacture test process such that counters
15 stored in a memory of the disk drive indicate which portion of the disk has been processed by the
16 manufacture test process.

1 37. (Cancelled)

1 38. (Cancelled)

1 39. (Currently Amended) The system of Claim 36 ~~38~~-wherein the first flaw mapping test
2 is performed by identifying logical block addresses (LBAs) on the disk to which information is to
3 be written, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 40. (Currently Amended) The system of Claim 36 ~~38~~ wherein the second flaw mapping
2 test is performed by accessing the memory and identifying an increment of logical block
3 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
4 increment, and updating the memory to indicate which of the LBAs have been processed.

1 41. (Currently Amended) The system of Claim 36 ~~37~~ wherein the processing module
2 performs the ERC when the computer system is idle by accessing the memory to determine
3 which cylinder was last processed, performing the ERC on the next cylinder, and updating the
4 memory to indicate completion of the ERC on the next cylinder.

1 42. (Currently Amended) The system of Claim 36 ~~37~~ wherein the processing module
2 performs the final drive verification such that a first final drive verification test is performed
3 when a user command for operating the disk drive is pending and a second final drive
4 verification test is performed when the computer system is idle.

1 43. (Previously Presented) The system of Claim 42 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 44. (Previously Presented) The system of Claim 42 wherein the second final drive
2 verification test is performed by accessing the memory and identifying an increment of logical
3 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
4 the increment, and updating the memory to indicate which of the LBAs have been processed.

1 45. (Previously Presented) The system of Claim 36 wherein a predetermined portion of
2 the disk is processed by the manufacture test process before installation of the disk drive in the
3 computer system, and the portion of the disk drive which has been processed is identified by the
4 controller.

1 46. (Previously Presented) The system of Claim 45 wherein any major flaw in the disk is
2 detected before the disk drive is installed in the computer system.

1 47. (Previously Presented) The system of Claim 45 wherein the disk includes concentric
2 tracks and the predetermined portion includes a predetermined percentage of the tracks as well as
3 every Nth of the tracks.

1 48. (Currently Amended) A method of performing a manufacture test process for a disk
2 drive, comprising:

3 installing the disk drive in a computer system and employing the disk drive for operations
4 of the computer system after the disk drive leaves a factory; then

5 detecting a predetermined condition in the computer system, wherein the detected
6 condition includes a user command pending from the computer system and the computer system
7 is idle;

8 performing a manufacture test process on a particular area of a disk of the disk drive for
9 the first time in response to the detected condition, wherein the manufacture test process is
10 performed in accordance with information stored in a memory of the disk drive which indicates
11 where the manufacture test process shall begin and end, ~~and~~ the manufacture test process corrects
12 errors detected on the disk, the manufacture test process includes at least one of flaw mapping,
13 embedded runout compensation (ERC) and final drive verification, and the flaw mapping
14 includes:

15 determining the detected condition for the computer system;

16 if the user command is pending, before performing the user command:

17 identifying logical block addresses (LBAs) employed as part of performing
18 the user command;

19 accessing the memory to determine if the identified logical block
20 addresses have been previously processed;

21 if any of the LBAs are unprocessed, performing a write/verify on each of
22 the unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify;
23 and

24 updating the memory to indicate which of the unprocessed LBAs have
25 been processed;
26 if the computer system is idle:
27 accessing the memory and identifying a next increment of LBAs to
28 process;
29 performing the write/verify on each of the LBAs in the increment;
30 reassigning the LBAs in the increment which fail the write/verify; and
31 updating the memory to indicate that the LBAs in the increment have been
32 processed; and
33 updating the memory to indicate upon which portions of the disk the manufacture test
34 process has been performed.

1 49. (Cancelled)

1 50. (Cancelled)

1 51. (Cancelled)

1 52. (Currently Amended) The method of Claim ~~48~~ 49-wherein the ERC includes:
2 determining the detected condition for the computer system; and
3 if the computer system is idle:
4 accessing the memory and identifying a next cylinder to process;
5 performing the ERC on the next cylinder, and storing in the memory any
6 generated error values; and
7 updating the memory to indicate that the next cylinder has been processed.

1 53. (Currently Amended) The method of Claim ~~48~~ 49-wherein the final drive verification
2 includes:
3 determining the detected condition for the computer system;
4 if the user command is pending, before performing the user command:

5 identifying logical block addresses (LBAs) employed as part of performing the
6 user command;
7 accessing the memory to determine if the identified logical block addresses have
8 been previously processed;
9 if any of the LBAs are unprocessed, performing a write/verify on each of the
10 unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify; and
11 updating the memory to indicate which of the unprocessed LBAs have been
12 processed;
13 if the computer system is idle:
14 accessing the memory and identifying a next increment of LBAs to process;
15 performing the read/verify on each of the LBAs in the increment;
16 reassigning the LBAs in the increment which fail the read/verify; and
17 updating the memory to indicate that the LBAs in the increment have been
18 processed.

1 54. (Previously Presented) The method of Claim 48 including performing the
2 manufacture test process prior to installation of the disk drive in the computer system to identify
3 a major flaw on the disk.

1 55. (Previously Presented) The method of Claim 48 wherein a program for performing the
2 manufacturing test process is placed in the memory before installing the disk drive in the
3 computer system.

1 56. (Previously Presented) The method of Claim 54 wherein the disk includes concentric
2 tracks and performing the manufacture test process prior to installation of the disk drive in the
3 computer system includes testing a predetermined percentage of the tracks as well as every Nth
4 track of the tracks.

1 57. (Currently Amended) A disk drive, comprising:
2 a disk with spaced tracks for storing information;

3 a head that reads and writes information to and from the disk;
4 a memory;
5 a processing module stored in the memory that performs a manufacture test process on
6 the disk while the disk drive is installed and operating in a computer system, wherein the
7 manufacture test process includes at least one of flaw mapping, embedded runout compensation
8 (ERC) and final drive verification, and the processing module performs the flaw mapping such
9 that a first flaw mapping test is performed when a user command for operating the disk drive is
10 pending and a second flaw mapping test is performed when the computer system is idle; and
11 a controller that executes the manufacture test process on a portion of the disk for the first
12 time in response to a predetermined condition of the computer system configured to control
13 operation of the head when the computer system is idle.

1 58. (Previously Presented) The disk drive of Claim 57 wherein the memory is a read only
2 memory (ROM).

1 59. (Previously Presented) The disk drive of Claim 57 wherein the memory is a processed
2 area of the disk.

1 60. (Cancelled)

1 61. (Cancelled)

1 62. (Currently Amended) The disk drive of Claim 57 ~~61~~ wherein the first flaw mapping
2 test is performed by identifying logical block addresses (LBAs) on the disk, determining whether
3 the identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 63. (Currently Amended) The disk drive of Claim 57 ~~61~~ wherein the second flaw
2 mapping test is performed by accessing the memory and identifying an increment of logical block

3 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
4 increment, and updating the memory to indicate which of the LBAs have been processed.

1 64. (Currently Amended) The disk drive of Claim 57 ~~60~~ wherein the processing module
2 performs the ERC when the computer system is idle by accessing the memory to determine
3 which cylinder was last processed, performing the ERC on the next cylinder, and updating the
4 memory to indicate completion of the ERC on the next cylinder.

1 65. (Currently Amended) The disk drive of Claim 57 ~~60~~ wherein the processing module
2 performs the final drive verification such that a first final drive verification test is performed
3 when a user command for operating the disk drive is pending and a second final drive
4 verification test when the computer system is idle.

1 66. (Previously Presented) The disk drive of Claim 65 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 67. (Previously Presented) The disk drive of Claim 65 wherein the second final drive
2 verification test is performed by accessing memory and identifying an increment of logical block
3 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
4 increment, and updating the memory to indicate which of the LBAs have been processed.

1 68. (Currently Amended) The disk drive of Claim 57 ~~48~~ wherein the disk drive performs
2 the manufacture test process on a predetermined portion of the disk before the disk drive is
3 installed in the computer system.

1 69. (Previously Presented) The disk drive of Claim 68 wherein the disk drive detects any
2 major flaws in the disk before the disk drive is installed in the computer system.

1 70. (Previously Presented) The disk drive of Claim 68 wherein the predetermined portion
2 includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 71. (Previously Presented) A disk drive, comprising:
2 a disk that includes spaced tracks for storing information;
3 a head that reads and writes information to and from the disk; and
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a
6 factory and before the disk drive is installed and operating in a computer system, and (2) on the
7 second portion of the disk for the first time after the disk drive is manufactured at the factory and
8 while the disk drive is installed and operating in the computer system.

1 72. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process includes at least one of flaw mapping, embedded runout compensation (ERC) and final
3 drive verification.

1 73. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process includes the flaw mapping.

1 74. (Previously Presented) The disk drive of Claim 73 wherein the controller executes the
2 flaw mapping on the second portion of the disk such that a first flaw mapping test is performed
3 when a user command for operating the disk drive is pending and a second flaw mapping test is
4 performed when the computer system is idle.

1 75. (Previously Presented) The disk drive of Claim 74 wherein the first flaw mapping test
2 is performed by identifying logical block addresses (LBAs) on the disk, determining whether the
3 identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 76. (Previously Presented) The disk drive of Claim 74 wherein the second flaw mapping
2 test is performed by identifying an increment of logical block addresses (LBAs) which are
3 unprocessed, performing a write/verify on each of the LBAs in the increment, and updating
4 which of the LBAs have been processed.

1 77. (Previously Presented) The disk drive of Claim 74 wherein:
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on
3 the disk, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and
5 the second flaw mapping test is performed by identifying an increment of logical block
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
7 increment, and indicating which of the LBAs have been processed.

1 78. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process includes the ERC.

1 79. (Previously Presented) The disk drive of Claim 78 wherein the controller executes the
2 ERC by determining which cylinder was last processed, performing the ERC on the next
3 cylinder, and indicating completion of the ERC on the next cylinder.

1 80. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process includes the final drive verification.

1 81. (Previously Presented) The disk drive of Claim 80 wherein the controller executes the
2 final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle.

1 82. (Previously Presented) The disk drive of Claim 81 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which

3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 83. (Previously Presented) The disk drive of Claim 81 wherein the second final drive
2 verification test is performed by identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 indicating which of the LBAs have been processed.

1 84. (Previously Presented) The disk drive of Claim 81 wherein:
2 the first final drive verification test is performed by identifying logical block addresses
3 (LBAs) on the disk to which information is to be written, determining whether the identified
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a
5 write/verify on each of the LBAs; and
6 the second final drive verification test is performed by identifying an increment of logical
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
8 the increment, and indicating which of the LBAs have been processed.

1 85. (Previously Presented) The disk drive of Claim 71 wherein the controller executes the
2 manufacture test process on the first portion of the disk such that any major flaws in the disk are
3 detected.

1 86. (Previously Presented) The disk drive of Claim 71 wherein the first portion of the disk
2 includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 87. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process is stored in a random access memory (RAM) in the disk drive.

1 88. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process is stored in a read only memory (ROM) in the disk drive.

1 89. (Previously Presented) The disk drive of Claim 71 wherein the manufacture test
2 process is stored in the first portion of the disk.

1 90. (Previously Presented) The disk drive of Claim 71 wherein the first portion of the disk
2 is smaller than the second portion of the disk.

1 91. (Previously Presented) A disk drive, comprising:
2 a disk with spaced tracks for storing information;
3 a head that reads and writes information to and from the disk; and
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a
6 factory and before the disk drive is delivered from the factory and installed and operating in a
7 computer system, and (2) on the second portion of the disk for the first time after the disk drive is
8 manufactured at and delivered from the factory and while the disk drive is installed and operating
9 in the computer system, thereby reducing manufacturing time for the disk drive at the factory.

1 92. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process includes at least one of flaw mapping, embedded runout compensation (ERC) and final
3 drive verification.

1 93. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process includes the flaw mapping.

1 94. (Previously Presented) The disk drive of Claim 93 wherein the controller executes the
2 flaw mapping on the second portion of the disk such that a first flaw mapping test is performed
3 when a user command for operating the disk drive is pending and a second flaw mapping test is
4 performed when the computer system is idle.

1 95. (Previously Presented) The disk drive of Claim 94 wherein the first flaw mapping test
2 is performed by identifying logical block addresses (LBAs) on the disk, determining whether the

3 identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 96. (Previously Presented) The disk drive of Claim 94 wherein the second flaw mapping
2 test is performed by identifying an increment of logical block addresses (LBAs) which are
3 unprocessed, performing a write/verify on each of the LBAs in the increment, and updating
4 which of the LBAs have been processed.

1 97. (Previously Presented) The disk drive of Claim 94 wherein:
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on
3 the disk, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and
5 the second flaw mapping test is performed by identifying an increment of logical block
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
7 increment, and indicating which of the LBAs have been processed.

1 98. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process includes the ERC.

1 99. (Previously Presented) The disk drive of Claim 98 wherein the controller executes the
2 ERC by determining which cylinder was last processed, performing the ERC on the next
3 cylinder, and indicating completion of the ERC on the next cylinder.

1 100. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process includes the final drive verification.

1 101. (Previously Presented) The disk drive of Claim 100 wherein the controller executes
2 the final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle.

1 102. (Previously Presented) The disk drive of Claim 101 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 103. (Previously Presented) The disk drive of Claim 101 wherein the second final drive
2 verification test is performed by identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 indicating which of the LBAs have been processed.

1 104. (Previously Presented) The disk drive of Claim 101 wherein:
2 the first final drive verification test is performed by identifying logical block addresses
3 (LBAs) on the disk to which information is to be written, determining whether the identified
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a
5 write/verify on each of the LBAs; and
6 the second final drive verification test is performed by identifying an increment of logical
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
8 the increment, and indicating which of the LBAs have been processed.

1 105. (Previously Presented) The disk drive of Claim 91 wherein the controller executes
2 the manufacture test process on the first portion of the disk such that any major flaws in the disk
3 are detected.

1 106. (Previously Presented) The disk drive of Claim 91 wherein the first portion of the
2 disk includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 107. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process is stored in a random access memory (RAM) in the disk drive.

1 108. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process is stored in a read only memory (ROM) in the disk drive.

1 109. (Previously Presented) The disk drive of Claim 91 wherein the manufacture test
2 process is stored in the first portion of the disk.

1 110. (Previously Presented) The disk drive of Claim 91 wherein the first portion of the
2 disk is smaller than the second portion of the disk.

1 111. (Previously Presented) A disk drive, comprising:
2 a disk with spaced tracks for storing information;
3 a head that reads and writes information to and from the disk;
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first
5 portion of the disk and not a second portion of the disk using the head while the disk drive is
6 manufactured at a factory and before the disk drive is installed and operating in a computer
7 system, and (2) on the second portion of the disk for the first time using the head after the disk
8 drive is manufactured at the factory and while the disk drive is installed and operating in the
9 computer system.

1 112. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process includes at least one of flaw mapping, embedded runout compensation (ERC) and final
3 drive verification.

1 113. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process includes the flaw mapping.

1 114. (Previously Presented) The disk drive of Claim 113 wherein the controller executes
2 the flaw mapping on the second portion of the disk such that a first flaw mapping test is
3 performed when a user command for operating the disk drive is pending and a second flaw
4 mapping test is performed when the computer system is idle.

1 115. (Previously Presented) The disk drive of Claim 114 wherein the first flaw mapping
2 test is performed by identifying logical block addresses (LBAs) on the disk, determining whether
3 the identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 116. (Previously Presented) The disk drive of Claim 114 wherein the second flaw
2 mapping test is performed by identifying an increment of logical block addresses (LBAs) which
3 are unprocessed, performing a write/verify on each of the LBAs in the increment, and updating
4 which of the LBAs have been processed.

1 117. (Previously Presented) The disk drive of Claim 114 wherein:
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on
3 the disk, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and
5 the second flaw mapping test is performed by identifying an increment of logical block
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
7 increment, and indicating which of the LBAs have been processed.

1 118. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process includes the ERC.

1 119. (Previously Presented) The disk drive of Claim 118 wherein the controller executes
2 the ERC by determining which cylinder was last processed, performing the ERC on the next
3 cylinder, and indicating completion of the ERC on the next cylinder.

1 120. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process includes the final drive verification.

1 121. (Previously Presented) The disk drive of Claim 120 wherein the controller executes
2 the final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle.

1 122. (Previously Presented) The disk drive of Claim 121 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 123. (Previously Presented) The disk drive of Claim 121 wherein the second final drive
2 verification test is performed by identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 indicating which of the LBAs have been processed.

1 124. (Previously Presented) The disk drive of Claim 121 wherein:
2 the first final drive verification test is performed by identifying logical block addresses
3 (LBAs) on the disk to which information is to be written, determining whether the identified
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a
5 write/verify on each of the LBAs; and
6 the second final drive verification test is performed by identifying an increment of logical
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
8 the increment, and indicating which of the LBAs have been processed.

1 125. (Previously Presented) The disk drive of Claim 111 wherein the controller executes
2 the manufacture test process on the first portion of the disk such that any major flaws in the disk
3 are detected.

1 126. (Previously Presented) The disk drive of Claim 111 wherein the first portion of the
2 disk includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 127. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process is stored in a random access memory (RAM) in the disk drive.

1 128. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process is stored in a read only memory (ROM) in the disk drive.

1 129. (Previously Presented) The disk drive of Claim 111 wherein the manufacture test
2 process is stored in the first portion of the disk.

1 130. (Previously Presented) The disk drive of Claim 111 wherein the first portion of the
2 disk is smaller than the second portion of the disk.

1 131. (Previously Presented) A disk drive, comprising:
2 a disk that includes spaced tracks for storing information;
3 a head that reads and writes information to and from the disk; and
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a
6 factory and before the disk drive is installed and operating in a computer system, and (2) on the
7 second portion of the disk for the first time in response to automatic initiation by the disk drive
8 after the disk drive is manufactured at the factory and while the disk drive is installed and
9 operating in the computer system.

1 132. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process includes at least one of flaw mapping, embedded runout compensation (ERC) and final
3 drive verification.

1 133. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process includes the flaw mapping.

1 134. (Previously Presented) The disk drive of Claim 133 wherein the controller executes
2 the flaw mapping on the second portion of the disk such that a first flaw mapping test is
3 performed when a user command for operating the disk drive is pending and a second flaw
4 mapping test is performed when the computer system is idle.

1 135. (Previously Presented) The disk drive of Claim 134 wherein the first flaw mapping
2 test is performed by identifying logical block addresses (LBAs) on the disk, determining whether
3 the identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 136. (Previously Presented) The disk drive of Claim 134 wherein the second flaw
2 mapping test is performed by identifying an increment of logical block addresses (LBAs) which
3 are unprocessed, performing a write/verify on each of the LBAs in the increment, and updating
4 which of the LBAs have been processed.

1 137. (Previously Presented) The disk drive of Claim 134 wherein:
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on
3 the disk, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and
5 the second flaw mapping test is performed by identifying an increment of logical block
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
7 increment, and indicating which of the LBAs have been processed.

1 138. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process includes the ERC.

1 139. (Previously Presented) The disk drive of Claim 138 wherein the controller executes
2 the ERC by determining which cylinder was last processed, performing the ERC on the next
3 cylinder, and indicating completion of the ERC on the next cylinder.

1 140. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process includes the final drive verification.

1 141. (Previously Presented) The disk drive of Claim 140 wherein the controller executes
2 the final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle.

1 142. (Previously Presented) The disk drive of Claim 141 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 143. (Previously Presented) The disk drive of Claim 141 wherein the second final drive
2 verification test is performed by identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 indicating which of the LBAs have been processed.

1 144. (Previously Presented) The disk drive of Claim 141 wherein:
2 the first final drive verification test is performed by identifying logical block addresses
3 (LBAs) on the disk to which information is to be written, determining whether the identified
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a
5 write/verify on each of the LBAs; and
6 the second final drive verification test is performed by identifying an increment of logical
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
8 the increment, and indicating which of the LBAs have been processed.

1 145. (Previously Presented) The disk drive of Claim 131 wherein the controller executes
2 the manufacture test process on the first portion of the disk such that any major flaws in the disk
3 are detected.

1 146. (Previously Presented) The disk drive of Claim 131 wherein the first portion of the
2 disk includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 147. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process is stored in a random access memory (RAM) in the disk drive.

1 148. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process is stored in a read only memory (ROM) in the disk drive.

1 149. (Previously Presented) The disk drive of Claim 131 wherein the manufacture test
2 process is stored in the first portion of the disk.

1 150. (Previously Presented) The disk drive of Claim 131 wherein the first portion of the
2 disk is smaller than the second portion of the disk.

1 151. (Previously Presented) A disk drive, comprising:
2 a disk with spaced tracks for storing information;
3 a head that reads and writes information to and from the disk; and
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a
6 factory and before the disk drive is delivered from the factory and installed and operating in a
7 computer system, and (2) on the second portion of the disk for the first time in response to
8 automatic initiation by the disk drive after the disk drive is manufactured at and delivered from
9 the factory and while the disk drive is installed and operating in the computer system, thereby
10 reducing manufacturing time for the disk drive at the factory.

1 152. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process includes at least one of flaw mapping, embedded runout compensation (ERC) and final
3 drive verification.

1 153. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process includes the flaw mapping.

1 154. (Previously Presented) The disk drive of Claim 153 wherein the controller executes
2 the flaw mapping on the second portion of the disk such that a first flaw mapping test is
3 performed when a user command for operating the disk drive is pending and a second flaw
4 mapping test is performed when the computer system is idle.

1 155. (Previously Presented) The disk drive of Claim 154 wherein the first flaw mapping
2 test is performed by identifying logical block addresses (LBAs) on the disk, determining whether
3 the identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 156. (Previously Presented) The disk drive of Claim 154 wherein the second flaw
2 mapping test is performed by identifying an increment of logical block addresses (LBAs) which
3 are unprocessed, performing a write/verify on each of the LBAs in the increment, and updating
4 which of the LBAs have been processed.

1 157. (Previously Presented) The disk drive of Claim 154 wherein:
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on
3 the disk, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and
5 the second flaw mapping test is performed by identifying an increment of logical block
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
7 increment, and indicating which of the LBAs have been processed.

1 158. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process includes the ERC.

1 159. (Previously Presented) The disk drive of Claim 158 wherein the controller executes
2 the ERC by determining which cylinder was last processed, performing the ERC on the next
3 cylinder, and indicating completion of the ERC on the next cylinder.

1 160. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process includes the final drive verification.

1 161. (Previously Presented) The disk drive of Claim 160 wherein the controller executes
2 the final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle.

1 162. (Previously Presented) The disk drive of Claim 161 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 163. (Previously Presented) The disk drive of Claim 161 wherein the second final drive
2 verification test is performed by identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 indicating which of the LBAs have been processed.

1 164. (Previously Presented) The disk drive of Claim 161 wherein:
2 the first final drive verification test is performed by identifying logical block addresses
3 (LBAs) on the disk to which information is to be written, determining whether the identified
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a
5 write/verify on each of the LBAs; and
6 the second final drive verification test is performed by identifying an increment of logical
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
8 the increment, and indicating which of the LBAs have been processed.

1 165. (Previously Presented) The disk drive of Claim 151 wherein the controller executes
2 the manufacture test process on the first portion of the disk such that any major flaws in the disk
3 are detected.

1 166. (Previously Presented) The disk drive of Claim 151 wherein the first portion of the
2 disk includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 167. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process is stored in a random access memory (RAM) in the disk drive.

1 168. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process is stored in a read only memory (ROM) in the disk drive.

1 169. (Previously Presented) The disk drive of Claim 151 wherein the manufacture test
2 process is stored in the first portion of the disk.

1 170. (Previously Presented) The disk drive of Claim 151 wherein the first portion of the
2 disk is smaller than the second portion of the disk.

1 171. (Previously Presented) A disk drive, comprising:
2 a disk with spaced tracks for storing information;
3 a head that reads and writes information to and from the disk;
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first
5 portion of the disk and not a second portion of the disk using the head while the disk drive is
6 manufactured at a factory and before the disk drive is installed and operating in a computer
7 system, and (2) on the second portion of the disk for the first time using the head in response to
8 automatic initiation by the disk drive after the disk drive is manufactured at the factory and while
9 the disk drive is installed and operating in the computer system.

1 172. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process includes at least one of flaw mapping, embedded runout compensation (ERC) and final
3 drive verification.

1 173. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process includes the flaw mapping.

1 174. (Previously Presented) The disk drive of Claim 173 wherein the controller executes
2 the flaw mapping on the second portion of the disk such that a first flaw mapping test is
3 performed when a user command for operating the disk drive is pending and a second flaw
o4 mapping test is performed when the computer system is idle.

1 175. (Previously Presented) The disk drive of Claim 174 wherein the first flaw mapping
2 test is performed by identifying logical block addresses (LBAs) on the disk, determining whether
3 the identified LBAs have been processed, and if the identified LBAs have not been processed,
4 performing a write/verify on each of the LBAs.

1 176. (Previously Presented) The disk drive of Claim 174 wherein the second flaw
2 mapping test is performed by identifying an increment of logical block addresses (LBAs) which
3 are unprocessed, performing a write/verify on each of the LBAs in the increment, and updating
4 which of the LBAs have been processed.

1 177. (Previously Presented) The disk drive of Claim 174 wherein:
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on
3 the disk, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and
5 the second flaw mapping test is performed by identifying an increment of logical block
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the
7 increment, and indicating which of the LBAs have been processed.

1 178. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process includes the ERC;

1 179. (Previously Presented) The disk drive of Claim 178 wherein the controller executes
2 the ERC by determining which cylinder was last processed, performing the ERC on the next
3 cylinder, and indicating completion of the ERC on the next cylinder.

1 180. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process includes the final drive verification.

1 181. (Previously Presented) The disk drive of Claim 180 wherein the controller executes
2 the final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle.

1 182. (Previously Presented) The disk drive of Claim 181 wherein the first final drive
2 verification test is performed by identifying logical block addresses (LBAs) on the disk to which
3 information is to be written, determining whether the identified LBAs have been processed, and
4 if the identified LBAs have not been processed, performing a write/verify on each of the LBAs.

1 183. (Previously Presented) The disk drive of Claim 181 wherein the second final drive
2 verification test is performed by identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 indicating which of the LBAs have been processed.

1 184. (Previously Presented) The disk drive of Claim 181 wherein:
2 the first final drive verification test is performed by identifying logical block addresses
3 (LBAs) on the disk to which information is to be written, determining whether the identified
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a
5 write/verify on each of the LBAs; and

6 the second final drive verification test is performed by identifying an increment of logical
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in
8 the increment, and indicating which of the LBAs have been processed.

1 185. (Previously Presented) The disk drive of Claim 171 wherein the controller executes
2 the manufacture test process on the first portion of the disk such that any major flaws in the disk
3 are detected.

1 186. (Previously Presented) The disk drive of Claim 171 wherein the first portion of the
2 disk includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 187. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process is stored in a random access memory (RAM) in the disk drive.

1 188. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process is stored in a read only memory (ROM) in the disk drive.

1 189. (Previously Presented) The disk drive of Claim 171 wherein the manufacture test
2 process is stored in the first portion of the disk.

1 190. (Previously Presented) The disk drive of Claim 171 wherein the first portion of the
2 disk is smaller than the second portion of the disk.

1 191. (New) An automated manufacture process test system resident upon a disk drive that
2 performs a manufacture test process on the disk drive once the disk drive is installed and
3 operating within a computer system, the test system comprising:

4 a monitor that determines whether any user command from the computer system is
5 pending or the computer system is idle;

6 a processing module that performs the manufacture test process on a disk of the disk
7 drive, wherein the manufacture test process is performed on a portion of the disk for the first time

8 and in a particular manner depending on whether the computer system has issued the user
9 command or the computer system is idle, the manufacture test process includes at least one of
10 flaw mapping, embedded runout compensation (ERC) and final drive verification, and the
11 processing module performs the final drive verification such that a first final drive verification
12 test is performed when a user command for operating the disk drive is pending and a second final
13 drive verification test is performed when the computer system is idle; and

14 a controller that tracks performance of the manufacture test process such that counters
15 stored in a memory of the disk drive indicate which portion of the disk has been processed by the
16 manufacture test process.

1 192. (New) The system of Claim 191 wherein the processing module performs the flaw
2 mapping such that a first flaw mapping test is performed when a user command for operating the
3 disk drive is pending and a second flaw mapping test is performed when the computer is system
4 is idle, and the first flaw mapping test is performed by identifying logical block addresses (LBAs)
5 on the disk to which information is to be written, determining whether the identified LBAs have
6 been processed, and if the identified LBAs have not been processed, performing a write/verify on
7 each of the LBAs.

1 193. (New) The system of Claim 191 wherein the processing module performs the flaw
2 mapping such that a first flaw mapping test is performed when a user command for operating the
3 disk drive is pending and a second flaw mapping test is performed when the computer is system
4 is idle, and the second flaw mapping test is performed by accessing the memory and identifying
5 an increment of logical block addresses (LBAs) which are unprocessed, performing a write/verify
6 on each of the LBAs in the increment, and updating the memory to indicate which of the LBAs
7 have been processed.

1 194. (New) The system of Claim 191 wherein the processing module performs the ERC
2 when the computer system is idle by accessing the memory to determine which cylinder was last
3 processed, performing the ERC on the next cylinder, and updating the memory to indicate
4 completion of the ERC on the next cylinder.

1 195. (New) The system of Claim 191 wherein the first final drive verification test is
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to
3 be written, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 196. (New) The system of Claim 191 wherein the second final drive verification test is
2 performed by accessing the memory and identifying an increment of logical block addresses
3 (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the increment,
4 and updating the memory to indicate which of the LBAs have been processed.

1 197. (New) The system of Claim 191 wherein a predetermined portion of the disk is
2 processed by the manufacture test process before installation of the disk drive in the computer
3 system, and the portion of the disk drive which has been processed is identified by the controller.

1 198. (New) The system of Claim 197 wherein any major flaw in the disk is detected
2 before the disk drive is installed in the computer system.

1 199. (New) The system of Claim 197 wherein the disk includes concentric tracks and the
2 predetermined portion includes a predetermined percentage of the tracks as well as every Nth of
3 the tracks.

1 200. (New) A method of performing a manufacture test process for a disk drive,
2 comprising:
3 installing the disk drive in a computer system and employing the disk drive for operations
4 of the computer system after the disk drive leaves a factory; then
5 detecting a predetermined condition in the computer system;
6 performing a manufacture test process on a particular area of a disk of the disk drive for
7 the first time in response to the detected condition, wherein the manufacture test process is
8 performed in accordance with information stored in a memory of the disk drive which indicates

9 where the manufacture test process shall begin and end, the manufacture test process corrects
10 errors detected on the disk, the manufacture test process includes at least one of flaw mapping,
11 embedded runout compensation (ERC) and final drive verification, and the final drive
12 verification includes:
13 determining the detected condition for the computer system;
14 if the user command is pending, before performing the user command:
15 identifying logical block addresses (LBAs) employed as part of performing
16 the user command;
17 accessing the memory to determine if the identified logical block
18 addresses have been previously processed;
19 if any of the LBAs are unprocessed, performing a write/verify on each of
20 the unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify;
21 and
22 updating the memory to indicate which of the unprocessed LBAs have
23 been processed;
24 if the computer system is idle:
25 accessing the memory and identifying a next increment of LBAs to
26 process;
27 performing the read/verify on each of the LBAs in the increment;
28 reassigning the LBAs in the increment which fail the read/verify; and
29 updating the memory to indicate that the LBAs in the increment have been
30 processed; and
31 updating the memory to indicate upon which portions of the disk the manufacture test
32 process has been performed.

1 201. (New) The method of Claim 200 wherein the detected condition includes a user
2 command pending from the computer system and the computer system is idle.

1 202. (New) The method of Claim 200 wherein the ERC includes:
2 determining the detected condition for the computer system; and

3 if the computer system is idle:
4 accessing the memory and identifying a next cylinder to process;
5 performing the ERC on the next cylinder, and storing in the memory any
6 generated error values; and
7 updating the memory to indicate that the next cylinder has been processed.

1 203. (New) The method of Claim 200 including performing the manufacture test process
2 prior to installation of the disk drive in the computer system to identify a major flaw on the disk.

1 204. (New) The method of Claim 200 wherein a program for performing the
2 manufacturing test process is placed in the memory before installing the disk drive in the
3 computer system.

1 205. (New) The method of Claim 203 wherein the disk includes concentric tracks and
2 performing the manufacture test process prior to installation of the disk drive in the computer
3 system includes testing a predetermined percentage of the tracks as well as every Nth track of the
4 tracks.

1 206. (New) A method of performing a manufacture test process for a disk drive,
2 comprising:
3 performing a manufacture test process on a disk of the disk drive prior to installation of
4 the disk drive in a computer system to identify a major flaw on the disk, wherein the manufacture
5 test process is performed in accordance with information stored in a memory of the disk drive
6 which indicates where the manufacture test process shall begin and end, the manufacture test
7 process corrects errors detected on the disk, the disk includes concentric tracks, and performing
8 the manufacture test process prior to installation of the disk drive in the computer system
9 includes testing a predetermined percentage of the tracks as well as every Nth track of the tracks;
10 then
11 installing the disk drive in the computer system and employing the disk drive for
12 operations of the computer system after the disk drive leaves a factory; then

13 detecting a predetermined condition in the computer system;
14 performing the manufacture test process on a particular area of the disk for the first time
15 in response to the detected condition; and
16 updating the memory to indicate upon which portions of the disk the manufacture test
17 process has been performed.

1 207. (New) The method of Claim 206 wherein the manufacture test process includes at
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1 208. (New) The method of Claim 207 wherein the detected condition includes a user
2 command pending from the computer system and the computer system is idle.

1 209. (New) The method of Claim 207 wherein the ERC includes:
2 determining the detected condition for the computer system; and
3 if the computer system is idle:
4 accessing the memory and identifying a next cylinder to process;
5 performing the ERC on the next cylinder, and storing in the memory any
6 generated error values; and
7 updating the memory to indicate that the next cylinder has been processed.

1 210. (New) The method of Claim 206 wherein a program for performing the
2 manufacturing test process is placed in the memory before installing the disk drive in the
3 computer system.

1 211. (New) A disk drive, comprising:
2 a disk with spaced tracks for storing information;
3 a head that reads and writes information to and from the disk;
4 a memory;
5 a processing module stored in the memory that performs a manufacture test process on
6 the disk while the disk drive is installed and operating in a computer system, wherein the

7 manufacture test process includes at least one of flaw mapping, embedded runout compensation
8 (ERC) and final drive verification, and the processing module performs the final drive
9 verification such that a first final drive verification test is performed when a user command for
10 operating the disk drive is pending and a second final drive verification test when the computer
11 system is idle; and

12 a controller that executes the manufacture test process on a portion of the disk for the first
13 time in response to a predetermined condition of the computer system configured to control
14 operation of the head when the computer system is idle.

1 212. (New) The disk drive of Claim 211 wherein the memory is a read only memory
2 (ROM).

1 213. (New) The disk drive of Claim 211 wherein the memory is a processed area of the
2 disk.

1 214. (New) The disk drive of Claim 211 wherein the processing module performs the
2 flaw mapping such that a first flaw mapping test is performed when a user command for
3 operating the disk drive is pending and a second flaw mapping test is performed when the
4 computer system is idle, and the first flaw mapping test is performed by identifying logical block
5 addresses (LBAs) on the disk, determining whether the identified LBAs have been processed,
6 and if the identified LBAs have not been processed, performing a write/verify on each of the
7 LBAs.

1 215. (New) The disk drive of Claim 211 wherein the processing module performs the
2 flaw mapping such that a first flaw mapping test is performed when a user command for
3 operating the disk drive is pending and a second flaw mapping test is performed when the
4 computer system is idle, and the second flaw mapping test is performed by accessing the memory
5 and identifying an increment of logical block addresses (LBAs) which are unprocessed,
6 performing a write/verify on each of the LBAs in the increment, and updating the memory to
7 indicate which of the LBAs have been processed.

1 216. (New) The disk drive of Claim 211 wherein the processing module performs the
2 ERC when the computer system is idle by accessing the memory to determine which cylinder
3 was last processed, performing the ERC on the next cylinder, and updating the memory to
4 indicate completion of the ERC on the next cylinder.

1 217. (New) The disk drive of Claim 211 wherein the first final drive verification test is
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to
3 be written, determining whether the identified LBAs have been processed, and if the identified
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 218. (New) The disk drive of Claim 211 wherein the second final drive verification test is
2 performed by accessing memory and identifying an increment of logical block addresses (LBAs)
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and
4 updating the memory to indicate which of the LBAs have been processed.

1 219. (New) The disk drive of Claim 211 wherein the disk drive performs the manufacture
2 test process on a predetermined portion of the disk before the disk drive is installed in the
3 computer system.

1 220. (New) The disk drive of Claim 219 wherein the disk drive detects any major flaws in
2 the disk before the disk drive is installed in the computer system.

1 221. (New) The disk drive of Claim 219 wherein the predetermined portion includes a
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1 222. (New) A disk drive, comprising:
2 a disk with spaced tracks for storing information;
3 a head that reads and writes information to and from the disk;
4 a memory;

5 a processing module stored in the memory that performs a manufacture test process on
6 the disk while the disk drive is installed and operating in a computer system; and

7 a controller that executes the manufacture test process on a portion of the disk for the first
8 time in response to a predetermined condition of the computer system configured to control
9 operation of the head when the computer system is idle;

10 wherein the disk drive performs the manufacture test process on a predetermined portion
11 of the disk before the disk drive is installed in the computer system, and the predetermined
12 portion includes a predetermined percentage of the tracks as well as every Nth of the tracks.

1 223. (New) The disk drive of Claim 222 wherein the memory is a read only memory
2 (ROM).

1 224. (New) The disk drive of Claim 222 wherein the memory is a processed area of the
2 disk.

1 225. (New) The disk drive of Claim 222 wherein the manufacture test process includes at
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1 226. (New) The disk drive of Claim 225 wherein the processing module performs the
2 flaw mapping such that a first flaw mapping test is performed when a user command for
3 operating the disk drive is pending and a second flaw mapping test is performed when the
4 computer system is idle, and the first flaw mapping test is performed by identifying logical block
5 addresses (LBAs) on the disk, determining whether the identified LBAs have been processed,
6 and if the identified LBAs have not been processed, performing a write/verify on each of the
7 LBAs.

1 227. (New) The disk drive of Claim 225 wherein the processing module performs the
2 flaw mapping such that a first flaw mapping test is performed when a user command for
3 operating the disk drive is pending and a second flaw mapping test is performed when the
4 computer system is idle, and the second flaw mapping test is performed by accessing the memory

5 and identifying an increment of logical block addresses (LBAs) which are unprocessed,
6 performing a write/verify on each of the LBAs in the increment, and updating the memory to
7 indicate which of the LBAs have been processed.

1 228. (New) The disk drive of Claim 225 wherein the processing module performs the
2 ERC when the computer system is idle by accessing the memory to determine which cylinder
3 was last processed, performing the ERC on the next cylinder, and updating the memory to
4 indicate completion of the ERC on the next cylinder.

1 229. (New) The disk drive of Claim 225 wherein the processing module performs the
2 final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle, and the first final drive verification test is performed by identifying
5 logical block addresses (LBAs) on the disk to which information is to be written, determining
6 whether the identified LBAs have been processed, and if the identified LBAs have not been
7 processed, performing a write/verify on each of the LBAs.

1 230. (New) The disk drive of Claim 225 wherein the processing module performs the
2 final drive verification such that a first final drive verification test is performed when a user
3 command for operating the disk drive is pending and a second final drive verification test when
4 the computer system is idle, and the second final drive verification test is performed by accessing
5 memory and identifying an increment of logical block addresses (LBAs) which are unprocessed,
6 performing a write/verify on each of the LBAs in the increment, and updating the memory to
7 indicate which of the LBAs have been processed.

1 231. (New) The disk drive of Claim 222 wherein the disk drive detects any major flaws in
2 the disk before the disk drive is installed in the computer system.